

What is claimed is:

1) A catalyst useful in the formation of polyisocyanurate foam from an isocyanate and a polyol comprising:

- 5           a) an amine component comprising N,N,N'-trimethylaminoethyl-ethanolamine;  
and  
            b) a trimer catalyst component.

2) A catalyst according to claim 1 wherein said trimer catalyst comprises an alkali  
10 metal salt of a carboxylic acid.

3) A catalyst according to claim 2 wherein said salt is selected from the group  
consisting of: octoate salts and acetate salts of an element selected from the group  
consisting of: lithium, sodium, potassium, and cesium.

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4) A catalyst according to claim 1 further comprising an additional amine component.

- 5) A catalyst according to claim 4 wherein said additional amine component is selected from the group consisting of: pentamethyldiethylenetriamine; dimethylcyclohexylamine; 2,2'-oxybis (N,N-dimethylethanamine); aminophenol; dimethylethanolamine; dimethylpiperazine; N-ethylmorpholine; N-methylmorpholine;
- 5 1,3,5-triazine-1,3,5 (2H, 4H, 6H)-tripropanamine, N, N, N',N', N'', N''-hexamethyl; 1,3-propanediamine,N'-(3-(dimethylamino)propyl)-N,N-dimethyl; 2-propanol, 1-(bis(3-dimethylamino)propyl) amino); 2-((2-(2-(dimethylamino)ethoxy)ethyl)methylamino)-ethanol; dimethylaminoethoxyethanol; 1,3-propanediamine, N-[3-(dimethylamino)propyl]-N,N',N'-trimethyl; 1,3-propanediamine, N, N-bis[3-(dimethylamino)propyl]-N',N'-dimethyl; morpholine, 4,4'-(oxydi-2,1-ethanediyl)bis-dimorpholino ethane; and triethylenediamine.
- 10 6) A catalyst according to claim 1, further comprising an organotin compound.
- 15 7) A process for producing an isocyanurate foam product comprising the steps of:
- a) providing an isocyanate and a polyol;
  - b) providing a catalyst comprising:
    - i) an amine component comprising N,N,N'-trimethylaminoethyl-ethanolamine; and
    - 20 ii) a trimer catalyst component;
  - c) contacting said isocyanate and said polyol in the presence of said catalyst.

- 8) A process according to claim 7 wherein said isocyanate is selected from the group consisting of: aromatic di-isocyanates, polymeric isocyanates, aliphatic di-isocyanates, and aliphatic tri-isocyanates.
- 5 9) A process according to claim 7 wherein said polyol is selected from the group consisting of: aromatic polyesterpolyols, amino polyols, mannich polyols, sucrose-derived polyols, sorbitol-derived polyols, and combinations thereof.
- 10 10) A process according to claim 7 wherein said trimer catalyst is selected from the group consisting of: potassium octoate; potassium acetate; JEFFCAT® TR-52; 2-hydroxypropyl trimethylammonium 2-ethylhexanoate; and 2-hydroxypropyl trimethylammonium formate.
- 15 11) A process according to claim 7 wherein said catalyst further comprises: iii) a second amine component selected from the group consisting of: pentamethyldiethylenetriamine; dimethylethanolamine; 2, 2'-oxybis (N,N-dimethylethanolamine); triethylenediamine; 1,3,5-triazine-1,3,5 (2H, 4H, 6H)-tripropanamine, N, N, N',N', N'', N''-hexamethyl; 1,3-propanediamine, N, N-bis[3-(dimethylamino)propyl]-N',N'-dimethyl; aminophenol; and 1,3-propanediamine, N-[3-(dimethylamino)propyl]-N,N',N'-
- 20 trimethyl.

12) A process for producing an isocyanurate foam product comprising the steps of:

a) providing an isocyanate and a polyol;

b) providing a blowing agent;

c) providing a catalyst comprising:

5                    i) an amine component comprising N,N,N'-trimethylaminoethyl-ethanolamine; and

                    ii) a trimer catalyst component;

d) contacting said isocyanate and said polyol in the presence of said catalyst and said blowing agent.

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13) A process according to claim 12 wherein said isocyanate is selected from the group consisting of: aromatic di-isocyanates, polymeric isocyanates, aliphatic di-isocyanates, and aliphatic tri-isocyanates.

15    14) A process according to claim 12 wherein said polyol is selected from the group consisting of: aromatic polyesterpolyols, amino polyols, mannich polyols, sucrose-derived polyols, sorbitol-derived polyols, and combinations thereof.

                    15) A process according to claim 12 wherein said trimer catalyst is selected from the  
20    group consisting of: 2-hydroxypropyl trimethylammonium 2-ethylhexanoate; and 2-hydroxypropyl trimethylammonium formate.

- 16) A process according to claim 12 wherein said blowing agent is selected from the group consisting of: water, carbon dioxide, pentane, isopentane, cyclopentane, butane, R-141b®, and R-245FA®.
- 5 17) A process according to claim 12 wherein said catalyst further comprises: iii) a second amine component selected from the group consisting of:  
pentamethyldiethylenetriamine; dimethylethanolamine; 2, 2'-oxybis (N,N-dimethylethanolamine); triethylenediamine; 1,3,5-triazine-1,3,5 (2H, 4H, 6H)-  
tripropanamine, N, N, N',N', N'', N''-hexamethyl; 1,3-propanediamine, N, N-bis[3-  
10 (dimethylamino)propyl]-N',N'-dimethyl; aminophenol; and 1,3-propanediamine, N-[3-(dimethylamino)propyl]-N,N',N'-trimethyl.
- 18) A polyisocyanurate foam comprising N,N,N'-trimethylaminoethyl-ethanolamine.
- 15 19) A polyisocyanurate foam comprising N,N,N'-trimethylaminoethyl-ethanolamine and a trimer catalyst.
- 20) A foam according to claim 18 wherein said trimer catalyst is selected from the group consisting of: potassium octoate, and potassium acetate.

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